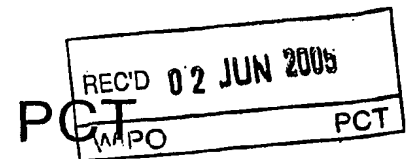


PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY



To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/B2005/000166

International filing date (day/month/year)
19.01.2005

Priority date (day/month/year)
26.01.2004

International Patent Classification (IPC) or both national classification and IPC
G11B7/09

Applicant
KONINKLIJKE PHILIPS ELECTRONICS N.V.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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Authorized Officer

Holubov, C

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IB2005/000166

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IB2005/000166

Box No. V Reasoned statement under Rule 43bis.1(a)(I) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-8
	No: Claims	
Inventive step (IS)	Yes: Claims	1-8
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-8
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

Reference is made to the following document:

D1: EP 0 587 350

D2: WO 02 05271

The document **D1** is regarded as being the closest prior art to the subject-matter of claim 1, and shows (the references in parentheses applying to this document):

An optical recording and reproducing device (Figure 1) comprising:

- an optical pick-up unit (6) including an optical sensor divided into at least two regions (column 11 lines 1-2);
- a servo processor (24) for delivering a control signal from a measured radial error (i.e. tracking error TE) signal delivered by the optical pick-up unit (column 6 line 4-8).

The **subject-matter of claim 1** differs from this known device in that the servo processor of claim 1 further comprises:

- a state estimator for delivering an estimated radial error signal and a predicted radial error signal on the basis of the measured radial error signal and of the control signal; and
- a shock detector for delivering a shock indication on the basis of the estimated radial error signal, of the predicted radial error signal, and of a sum of the signals delivered by the at least two regions of the optical sensor.

The device of D1 does comprise a shock detector (28, track jump detector in Figure 1), which involves a signal indicating a "defect", but the details are different (see column 3 lines 5-38, column 7 lines 24- column 9 line 29, Figure 3). In particular, the track jump detector of D1 uses a track zero cross signal (TZC) derived from a radial error (TE) signal, rather than the radial error signal itself, and does not use predicted values of a radial error signal. Also, D1 is silent about the details by which the defect signal is generated (it indicates that the reflected light is used, column 3 lines 22-24, but does not refer to using a sum signal of at least two regions of the optical sensor).

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as, at least, providing an **alternative device**.

The solution to this problem proposed in claim 1 of the present application is **considered to involve an inventive step** (Article 33(3) PCT), for the following reasons:

As indicated in the application, page 4 lines 13 and 23, the use of state estimators is known in servo control.

The application of state estimators in optical disc drives is also known: see, for example, D2, which discloses the use of a state estimator (abstract figure, reference 718), to generate a control signal (not a "high/low" shock detection signal) for a system subject to disturbances both due to shocks and to disc defects.

A direct application of state estimation in D1 would apparently result in a servo processor 24 using state estimation, and the use of the measured, or perhaps the estimated, radial error signals to generate the track zero cross signal that is one of the inputs to the track jump detector 28 shown in Figure 3.

It seems, however, to involve hindsight to suggest that the skilled person would (as opposed to could) then also adapt the track jump (i.e. shock) detector to deliver a shock indication on the basis of the estimated and the predicted radial error signal, as well as on the "defect" signal. For one thing, state estimators do not apparently always involve state predictors.

The subject-matter of claim 1 therefore appears to be non-obvious with regard to the disclosure of D1.

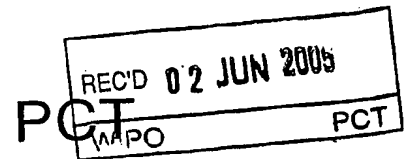
The subject-matter, of claim 2, directed to a servo processor for use in an optical recording and reproducing device with the same technical features as the servo processor of claim 1, also appears to be novel and non-obvious for the same reasons.

Claims 3-7 depend on claim 2 and the subject-matter of those claims is therefore novel and non-obvious inasmuch as the subject-matter of claim 2 is.

Claim 8 is directed to a processing method with steps corresponding to the use of the technical features of claim 2 and the subject-matter therefore also appears to be novel and non-obvious.

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Authorized Officer

Holubov, C

Telephone No. +31 70 340-2923



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INTERNATIONAL SEARCHING AUTHORITY**

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✓
**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IB2005/000166

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

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	No: Claims	
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see separate sheet

Re Item V

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The subject-matter of claim 1 therefore appears to be non-obvious with regard to the disclosure of D1.

The subject-matter, of claim 2, directed to a servo processor for use in an optical recording and reproducing device with the same technical features as the servo processor of claim 1, also appears to be novel and non-obvious for the same reasons.

Claims 3-7 depend on claim 2 and the subject-matter of those claims is therefore novel and non-obvious inasmuch as the subject-matter of claim 2 is.

Claim 8 is directed to a processing method with steps corresponding to the use of the technical features of claim 2 and the subject-matter therefore also appears to be novel and non-obvious.